



Centerline

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An Environmental News Quarterly, From the NCDOT Office of Natural Environment

Viewpoint: The New Board of Transportation Committee on the Environment

By: Nina Szlosberg, NC Board of Transportation, Environment



When I received a call one Sunday night in February from Governor Easley's office asking if I would serve as the state's first Board of Transportation member representing environmental interests, I was stunned, speechless and, needless to say,

honored. And I would have never guessed what was in store for me. It has been one of the most challenging and interesting times of my life.

Soon after the new board was sworn in, Board Chair Doug Galyon, Secretary Lyndo Tippet, Deputy Secretary for Environment, Planning and Local Government Roger Sheats and I began discussing how we might bring environmental issues to the Board. While environmental stewardship initiatives had been underway for several years at the Department, this was the first Board with a formal, legislative mandate to have environmental concerns represented. Together, we established the Board of Transportation's first Environmental Planning and Policy Committee (EPPC.)

Working with my Committee Vice-Chair Nancy Dunn (Winston-Salem), Board Chair Doug Galyon (Greensboro), and our wonderful professional staff (Roger Sheats, Janet D'Ignazio, and Julie

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The Process of Protecting the Red-Cockaded Woodpecker

By: Rachelle Beauregard, NCDOT Environmental Specialist
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NCDOT biologists conduct surveys for many different endangered species. One of these, my favorite, is the red-cockaded woodpecker (RCW). Before joining NCDOT as a biologist, I dealt with these birds often while employed with Dr. J.H. Carter III & Assoc., Inc., an environmental consulting firm in Southern Pines, NC. I conducted surveys, banding and demographic monitoring and foraging habitat analyses.

The best way to find RCWs is to look for their cavity trees. In North Carolina, they can be found in the Coastal Plain and Sandhills. Their typical habitat consists of open stands of mature longleaf pine trees, but also in pond, loblolly or shortleaf pines.

Unlike most woodpeckers, RCWs reside in live trees. A typical cavity tree will have sap running down the side of the tree and near the cavity entrance. The sap flows from resin wells made by the RCW, which are small holes that are chipped into the bark of the tree. The resulting sappy surface is mostly to protect their home against predators, such as snakes.

Surveys for RCWs are done by walking transects through the stand or flying transects by helicopter. Transects are a systematic method of surveying, wherein predetermined lines are followed through the stand. This allows the surveyor to see all sides of all trees and prevents them from missing or overlapping areas. Most surveys are done on foot. The width of the transects depends on the understory density. Helicopter surveys are an effective method when the ground vegetation is too dense to see overhead. The helicopter flies just above the tree tops in order to see the RCW cavities and sap which are



"Rachelle Climbing to get to the RCWs."

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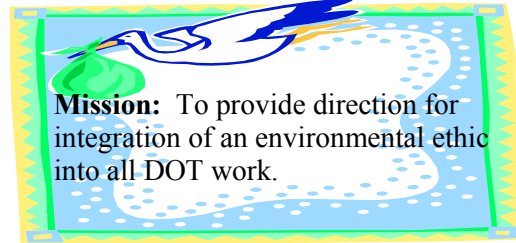
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Hunkins), we began to develop agendas that would give the committee some basic information about environmental issues as they relate to transportation. In the few months we have been meeting we have learned about the functions and value of wetlands and the impact of transportation projects on them. We have examined air quality issues and the impending crisis we face in many areas of our state regarding conformity, and we've heard about our efforts to improve citizen participation in transportation decisions. We will continue to develop agendas with environmental education in mind so that our knowledge and understanding of these complex and important issues can continue to grow.

Another important function of the committee is to keep the Board informed of the many environmental initiatives we now have underway at the Department. The EPPC has been briefed on the joint process improvements we have ongoing with the Department of the Environment and Natural Resources and the Army Corps of Engineers. We have also learned about important work between DOT, our partners in state government and the private sector to focus more attention on the air quality crisis we face in the state (The NC Air Quality Roundtable). And we have briefed the board on the role of the Division Environmental Officers (DEO's), a relatively new position in the Division whose job it is to oversee the Department's commitment to environmental stewardship throughout the state in our daily operations.

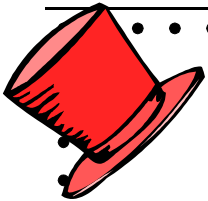
Balancing our mission to provide efficient, safe and affordable transportation options to our citizens with the need to protect our valuable natural and cultural resources for future generations is no small task. It will take us all working together to seek solutions and our collective will to make it happen. The work of the Environment, Planning and Policy Committee is one step in that process. I invite all of you to join us for our Committee meetings (8 a.m. on the Wednesday before the Board meeting in Room 150) and to share your ideas.

Environmental Planning and Policy Committee



Responsibilities:

- To recommend an environmental ethic policy to the Secretary and the Board.
- To recommend additional environmental policies to the Secretary and the Board as needed.
- To advise the Secretary and the Board on the consistency of existing and proposed plans, programs and policies to an environmental ethic.
- To focus the department on improving relationships with federal and state environmental review agencies.
- To promote transportation investments that protect and enhance communities and air and water quality.
- To advise the Secretary and the Board on policies, practices, and process changes that will balance efficient delivery of projects and services and our environmental stewardship ethic.
- To recommend policies, practices and process changes that will integrate state and local transportation, air quality, water quality, and land use planning.
- To provide guidance to the Secretary and the Board on methods and content for internal and external communication about our environmental ethic.



Hats off to Bruce Ellis

Bruce was presented the Scouts Webelos Leader of the Year Award for the Orange District in the Occoneechee Council on December 10, 2001. Congratulations Bruce!

Hats Off to Clarence Coleman

Clarence Coleman is Head Coach of the Raleigh Parks and Recreation League ages 5-7 basketball team. His boys are off to a successful season on the courts.

Hats Off to Our Recent Promotions



(Continued from page 1)

usually just above the dense understory. NCDOT has used helicopter RCW surveys for work on the Ellerbee Bypass, Red Springs Bypass, the I-40 Connector in New Hanover County, Gates County and in Tyrrell County for the Palmetto-Peartree Preserve (PPP). The survey of PPP found many clusters which are now part of a NCDOT mitigation site for RCWs.

Because PPP is a mitigation site, RCWs on the PPP are banded for demographic monitoring purposes. Banding allows biologists to track the movements of RCWs in each group and within the entire Preserve. Adult RCWs are banded by catching them in a net before they leave their cavity tree in the morning or when they roost in their cavity at night. During the RCW's breeding season, April to July, the nestlings are banded by climbing the nest tree, pulling them out with a neuse, banding the nestlings and putting them back in the cavity. Colored bands are put on the RCW's legs along with a US Fish and Wildlife Service (USFWS) band and are in a unique combination for each bird. Biologists are then able to identify a RCW by noting the color band sequence through a scope.

Along with needing mature pine trees to make cavities, RCWs need adequate foraging habitat. Foraging habitat is defined as pine and pine-hardwood stands over 30 years of age contiguous to and within one-half mile of the center of the cluster (Guidelines for Preparation of Biological Assessments and Evaluation for the Red-Cockaded Woodpecker, Henry 1989). When projects,

such as some by NCDOT, result in the "taking" of RCW foraging habitat of an active cluster (inactive clusters on certain occasions), a foraging habitat analysis is done. A foraging habitat analysis determines the amount of foraging habitat available to the RCW before and after the impacts. The amount is calculated from pine tree basal area and the amount of pine stems 10 inches or greater at diameter at breast height. The USFWS has developed minimum threshold numbers for projects involving a federal nexus and for private landowners.

RCWs are endangered mostly because of a habitat degradation and fragmentation. Many stands of pine trees left are too young to support cavity trees, or the understory has grown too dense. As a result, it is hard for RCWs to create new clusters and therefore important for the NCDOT and others who could pose impacts to aid in the protection of the species.



Baby Red Cockaded Woodpeckers

Wildlife Resource Commission Contracts for Mussel Surveys

By: Locke Milholland
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Before 1992, the North Carolina Department of Transportation's (NCDOT) freshwater mussel surveys were conducted by the NC Wildlife Resources Commission (NCWRC). It was 10 years ago that Tim Savidge joined the NCDOT Natural Systems Unit, and after working closely with the NCWRC eventually took over the task of mussel surveys. Tim has been the resident mussel expert ever since. With a Master's Degree in Marine Biology and a member of the Freshwater Mollusk Conservation Society, Tim has the experience and knowledge base to excel at the task. As a result, NCDOT has had the benefit of having its mussel surveys performed "in-house". This makes for a more efficient permitting process and allows for easier coordination between projects and surveys.

Due to an increased number of mussel species receiving protection in NC, as well as the discovery of new populations (expansion of known ranges) of many of these species, the number of NCDOT projects requiring mussel surveys has increased dramatically in the last few years.

NCDOT has close to 200 projects in its Transportation Program that currently requires mussel surveys. The task of keeping up with the survey demand has been difficult for the Natural Resources Staff, and this problem has been compounded by the loss of several key staff members that assisted with these mussel surveys. This led to the need to, again, contract approximately 10-15 projects a year with NCWRC (staff limitations in NCWRC prevents larger assignment numbers). By forecasting the need, and handing over some of the mussel surveys to NCWRC, will help insure that thorough investigations are conducted in the future. The renewed contract is a needed and appreciated addition to help the overloaded staff.



"Tim Savidge, NCDOT Biologist, Surveying for Mussels"

TRANSPORTATION IMPROVEMENTS ON FOREST SERVICE LANDS

By: Clay Willis, NCDOT Environmental Specialist

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The U.S. Forest Service in North Carolina has approximately 1,246,000 acres in North Carolina. This land is located in the eastern and western parts of the state and is separated into four National Forests. The largest of the four, the Nantahala Forest, ranges through seven western counties encompassing 530,412 acres in the mountains and valleys between Waynesville and Murphy. The streams and rivers in this forest drain into the Little Tennessee, Hiwassee, French Broad and Savannah drainage basins. The Pisgah Forest contains 505,226 acres extending through twelve western counties located in the French Broad and upper Catawba drainage basins. The Uwharrie Forest is the smallest of the four and contains 50,183 acres located within three counties in the Yadkin and Cape Fear drainage basins. The Croatan Forest is the only national forest located in the coastal plain of North Carolina. This forest includes 159,886 acres that extend through three coastal counties. The streams, rivers and swamplands associated with the Croatan Forest are located in the lower Neuse and White Oak drainage basins.

These forests provide important habitat for wildlife and fish, some of which depend on the forest areas to continue their existence. The Forest Service list approximately 21 endangered, 12 threatened, and 225 sensitive animal and plant species that are found on U.S. Forest Service property. There are 5,732 miles of perennial streams, some of which are designated as National Wild and Scenic Rivers. These forests are not only rich from an ecological standpoint, but also contain a valuable window into the past. There are 4,606 registered archaeological sites and many significant historical sites within the forest property boundaries. The North Carolina Department of Transportation recognizes that these lands are valuable resources to the natural environment and to the people of North Carolina. The NCDOT coordinates closely with the U.S. Forest Service to insure the management of the forest resources, while fulfilling NCDOT's responsibility to improve the transportation needs of North Carolina's citizens.

The forest service list 2,684 miles of major highways and rural secondary roads that cross through their property. These roadways often need maintenance or improvements, which require the NCDOT to attain additional right-of-way from the U.S. Forest Service and thus impact their property. When this action takes place between NCDOT and the U.S. Forest Service there are two Federal Acts

that direct both agencies through the process. The National Environmental Policy Act (NEPA) and the National Forest Management Act (NFMA). NEPA and NFMA require all federal agencies and their agents to evaluate and disclose the environmental impacts of their actions. Under the guidelines of these Acts, NCDOT and the U.S. Forest Service have contracted an agreement. In this agreement, both agencies are able to complete their objectives and adhere to the environmental standards set forth in the NFMA and NEPA guidelines. When a road improvement project arises NCDOT request the Forest Service to conduct the appropriate environmental assessment, which includes Proposed, Endangered, Threatened, Sensitive (PETS) species surveys, biological evaluations, visual analysis and archeological surveys. The U.S. Forest Service has a well trained staff of biologist and archaeologist that are assigned to the projects in their territory. Once the surveys, evaluations and final impact analysis are completed, then the U.S. Forest Service can issue a decision document to allow activities within the agreed upon right-of-way. Through the Forest Service evaluations and analysis, measures are brought forth that can be implemented in the road construction process. These measures aid the NCDOT in constructing and improving roads with the least amount of negative environmental impact on the forest resources.

The implementation of this process is one of the many task that the Project Development and Environmental Analysis Branch is responsible for carrying out. Through the establishment of the U.S. Forest Service and NCDOT protocols for handling road improvement projects on forest service property, we have insured that NCDOT has fulfilled it's responsibility to take part in the preservation of the National Forest lands in North Carolina, while also providing first rate transportation for North Carolina's citizens.



Project Spotlight: The Ellerbe Bypass, R-2231

By: Jeffrey Burleson, NCDOT Environmental Specialist
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The Ellerbe Bypass (R-2231) will replace the two-lane roadway from the south end of the Star/Biscoe/Candor Bypass to the existing four-lane roadway south of the town of Ellerbe. The length of the Ellerbe Bypass is approximately 16 miles and will be constructed almost entirely on new location. US 220, through Ellerbe, is a major travel route from the Winston Salem, Greensboro, High Point Triad area to the coastal regions of North and South Carolina. The Ellerbe Bypass is part of the future Interstate 73/74-transportation system.

Ellerbe has been receiving increased traffic volumes for many years flooding the small town with mobs of vehicles. The small, quaint town of Ellerbe is home of the infamous Ellerbe Springs Hotel and springs. Ellerbe Springs was a popular mineral spring that was used by vacationers for its mystic healing properties during the late 1800's and early 1900's. However, the Ellerbe Springs property has history back to 1793 when the Highland Scots used the property as their fairgrounds. The property is listed on the National Register of Historic Properties. The high traffic volumes have disturbed the aesthetic showcase in Ellerbe. The bypass will delight deep-rooted residents of Ellerbe returning the town to "the way it was" decades ago.

Within the project vicinity in Richmond and Montgomery Counties many valuable and important cultural resources are present. The preferred alternate was chosen wisely because of the historically important cultural resources. The alignments snake through a relatively high density of archaeological sites that span several prehistoric periods from 10,000 BC to 1,500 AD. Two historic properties were recognized within the project vicinity, including the Ellerbe Springs property and Mt. Carmel Presbyterian Church and cemetery. As for the National Register of Historic Properties, the Ellerbe Springs property is listed and Mt. Carmel Presbyterian Church and cemetery was determined eligible for listing.

Since a great deal of the project will be built on new location, the environmental impacts are quite substantial and complex. The bypass crosses through two river basins, Lumber River and Yadkin River Basins. Through careful design



Myrick Pond-A NCDOT Wetland and Stream Mitigation Site for the "Ellerbe Bypass".

and many revisions, the sixteen miles of new roadway will be impacting 28 acres of wetlands (2 acres in the Lumber River Basin and 26 acres in the Yadkin River Basin) and 7,193 feet of stream (351 feet in the Lumber River Basin and 6,842 feet in the Yadkin River Basin).

The Yadkin River Basin wetland impacts will be mitigated at NCDOT's Key Branch Wetland Mitigation site. The wetland and stream impacts will be offset in the Lumber River Basin at Myrick Pond, an "onsite" NCDOT wetland and stream mitigation site. Skelly and Loy Environmental Consultants are offsetting Yadkin River Basin stream impacts through a full delivery contract with NCDOT. An unnamed tributary to Naked Creek, an Outstanding Resource Water, will be bridged, thus minimizing the environmental effects to that high quality system. Bridging is costly, but protects the stream and its biological/hydrological value and will provide fish/wildlife corridors.

Federally protected species (federally endangered or federally threatened) habitat exists throughout the project corridor. The US Fish and Wildlife Service lists 5 species for Montgomery County and 6 species for Richmond County. The two counties jointly have 9 total federally protected species listed, including: bald eagle, eastern cougar, red cockaded woodpecker, Schweinitz's sunflower, smooth coneflower, short-nosed sturgeon, Carolina heelsplitter, Michaux's sumac, and rough-leaved loosestrife. Suitable habitat for 6 of the 9 species

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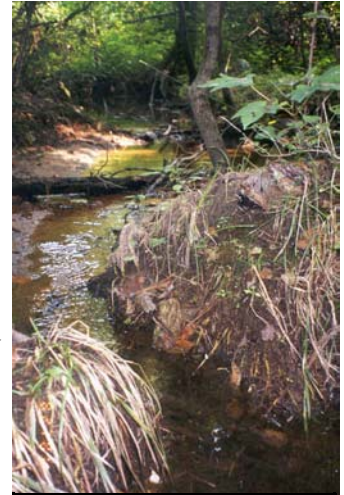
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occurs within the project corridor. Several terrestrial surveys were conducted throughout the project impact areas; however, no individual specimens were found. Several aquatic surveys were conducted searching for Carolina heelsplitter within the project corridor, downstream of the project corridor, adjacent tributaries, and adjacent catchments. After thorough survey, populations of eastern elliptos, eastern creekshells, and eastern floaters were found; however, no specimens of Carolina heelsplitter were identified.

Environmental permits are required by state and federal agencies to authorize construction of the Ellerbe Bypass, including a Section 404 Individual Permit from the US Army Corps of Engineers and a Section 401 Water Quality Certification from the NC Division of Water Quality. Permit acquisition is underway; however, obtaining permits is very problematic due to stream/wetland mitigation, protected species concerns,

avoidance/minimization measures, and indirect/secondary and cumulative impacts.

With agency approval anticipated in the near future, residents of Ellerbe will be closer to seeing “the way it was”. In addition, travelers will be able to pass through Richmond and Montgomery Counties at higher speeds continuously, avoiding the days of US 220 stoplights and congestion in Ellerbe. The highway improvements will definitely give a “sigh of relief” for residents of Ellerbe and north-south travelers passing through.



“Naked Creek”

NCDOT Sponsors Community Impact Assessment Workshop

By: Linda Hilton-Cain, Public Affairs Specialist
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The N.C. Department of Transportation (NCDOT), the Federal Highway Administration – Southern Resource Center, the Transportation Research Board and the Center for Transportation and the Environment at NC State University sponsored the Southern Region Community Impact Assessment (CIA) Workshop. Approximately 300 transportation professionals from across the country attended the December 5-7, 2001 workshop, which was held at the Sheraton Capital Center Hotel in Raleigh, North Carolina. Participants included representatives from state DOT’s, Metropolitan Planning Organizations, FHWA, the Southern Resource Center, and consultants. The purpose of the workshop was to bring together transportation professionals and explore community impact assessment techniques, share success stories, and discuss future challenges.

The workshop agenda included sessions on how to prepare a community impact assessment report; public involvement techniques; assessing secondary and cumulative impacts; and case studies on how to leverage resources through mitigation and enhancement to solve complicated community issues.

The keynote speaker at the December 6 luncheon was the Honorable Charles C. Meeker, newly elected Mayor of the City of Raleigh. Mayor Meeker spoke about balancing the area’s transportation needs and supports mass transit and other innovative ways to improve

the regional transportation system. He wants to establish local procedures that would allow more citizen input on land-use decisions, and believes developers should meet and work with citizens during the planning process so residents do not feel overrun by new developments. The final session was a panel discussion that included DOT Secretaries from six states. The discussion focused on strategic planning and how to implement the CIA process and meet future challenges.

As part of the workshop, the NCDOT sponsored a poster contest through Mary P. Douglas Elementary School, in Raleigh. The students were studying communities and the poster contest provided them with an opportunity to express their views about the community and what it means to them. Students from grades K-2 and grades 3-5 were asked to draw a poster and participate in the contest. A total of six posters were awarded prizes. In addition to the poster contest, second grade students from Douglas Elementary School opened the workshop with a folk dance and also told what communities mean to them. The NCDOT appreciates the students at Douglas Elementary participating in the opening ceremony and the poster contest as part of the workshop. We hope the student’s vision of a community and what it means to them inspired workshop participants to consider all community impacts during the planning process.

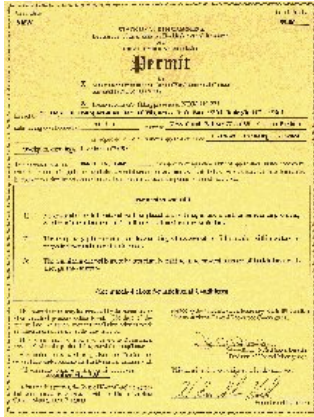


Winners of the Poster Contest

Nationwide Bridge Permit Applications Scoped to Consultants

By: Elizabeth Lee Lusk, NCDOT Environmental Specialist

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In an effort to relieve the Natural Systems staff of some of the paperwork, several of DOT's on-call consultants were recently scoped to assemble Nationwide permit applications for bridge replacement projects. Each Natural Systems team is providing consultant oversight. The four consultants: Arcadis G&M, EcoScience, LandMark, and

Stantec, are in the process of drafting approximately 40 bridge permit applications. At the time the work was scoped, construction let dates for these projects varied between May 2002 and July 2002. If the project requires a temporary construction access and the CE does not cover the impact, the consultant will include a Pre-Construction Notification (PCN) and verbiage requesting a Nationwide 33, in addition to the Nationwide 23. Under these scopes, projects requiring a CAMA permit were not included in the permit application groups.

The process begins with an approved Scope of Work and Cost Estimate. Following the Notice to Proceed, the Natural System Specialist responsible for project oversight transmits all NEPA/SEPA Documents to the consultant. They also transmit the following items, if available: the project NRTR; wetland/stream delineation report and data sheets; threatened and endangered species information and survey results, if applicable; bridge demolition data (if not in the NEPA document), and permit drawings (including buffer drawings), if needed. Included with these items is a list of DOT contact personnel responsible for the various stages of the project (Hydraulics, Roadway, Structures, PDEA, etc.), a sample permit application and PCN, as well as the "cc" list for the application cover letter. The consultant then conducts a site visit to become familiar with the project and any unique situations that may be encountered. Following the site visit, the consultant notifies DOT of any mitigation requirements, as well as any onsite mitigation opportunities. If a wetland delineation needs to be conducted, the consultant may be requested to do the delineation.

The consultant submits a draft permit application for DOT's review. Because the consultant may not be familiar with DOT's permit drawings or other components of the application, questions may arise that require assistance by the Natural Systems specialist. Following DOT's approval of the final permit application, the application goes through the normal in-house permit application process, i.e. Bill Gilmore's signature and distribution by DOT to the necessary agencies. Following permit issuance, the consultant responsible for drafting the application is charged with assembling the Green Sheet for DOT's approval and distribution.

We look forward to any new process that saves time and manpower for DOT. However, as with any new process, there is room for improvement. While it is difficult for the Natural Systems specialist to incorporate last minute design changes into an in-house permit application (especially if it has already been submitted), incorporating these changes is further complicated by the extra step in the process and timeliness becomes a greater concern. In addition, there has been some difficulty tracking down all the necessary information to transmit to the consultants. Oftentimes, documents are not available because of project delays. Further complications arise if these delays occur after the consultant has been scoped to draft the permit application, which includes a timeline for draft submittal. Flexibility for such delays should be incorporated into future scopes. Also, because some of the consultants are not familiar with the DOT permit application process, there is some training involved. However, it is anticipated that this learning curve will flatten out when additional nationwide permit applications are scoped to these same consultants.



Greetings from Division 4!

By: Robin Little, Environmental officer

Division 4 Environmental Officer

DEO Prospective: Featuring an article from a Division Environmental Officer.

This quarter's segment is brought to us by Division 4, located in the Coastal Plain Region of the state.

When I came on board 18 months ago, Division 4 was still reeling from the disastrous effects of Hurricanes Dennis and Floyd. The majority of the time in the first six months was spent trying to complete compliance issues with Federal Emergency Management Agency (FEMA) and the US Army Corps of Engineers (USACE). Over 350 culverts, roads and bridges were destroyed by the flooding, and then repaired during the following year.

The resultant backlog of maintenance projects is only now becoming manageable. We are developing protocols for permit processing and environmental review where none had existed before, performing the necessary environmental field reviews with the US Fish and Wildlife Service (USFWS), Division of Water Quality (DWQ) and the USACE, and training Division forces on environmental issues and regulations. All this has created a heavy workload and kept me very busy.

During the 2000 –2001 Fiscal Year;

- Over sixty secondary road projects were reviewed with respect to environmental regulations.
- Twenty-five Nationwide Permits and Water Quality Certifications were issued.
- Over ten Bridge Maintenance projects were reviewed and associated permits obtained.
- Approximately fifty sites were reviewed with respect to drainage and maintenance issues.
- Over thirty FEMA compliance reviews were

completed.

- Three violations were brought into compliance.
- One major permit modification was submitted and approved.
- Approximately ten borrow and waste pit reclamation plan reviews were also completed.
- Provided training modules for Division staff, and attended TIP project Field reviews and Pre-construction meetings, as well as Quarterly DEO Meetings, various training workshops and conferences.

With the support of the Division Engineer, a “District Environmental Coordinator” was identified in each District to act as a point of contact for permit related issues and relevant training. Also, by organizing the informal consultation and review process with the USFWS, the amount of written correspondence has been reduced. Our submittal of “Environmental Program Coordinator” was recognized in the category of Environmental Sustainability, at the Continuous Process Improvements Award Ceremony in October 2001.

I feel strongly that the DEO program provides a valuable resource to NCDOT at the Division level and also to the community at large. The DEO program embodies the concept of Environmental Stewardship. The DEO can help to raise the awareness of environmental issues at the Division level, and within the community at large, thereby avoiding unnecessary environmental impacts.

DETOURS

Understanding Engineers

There was an engineer who had an exceptional gift for fixing all things mechanical. After serving his company loyally for over 30 years, he happily retired. Several years later the company contacted him regarding a seemingly impossible problem they were having with one of their multimillion dollar machines. They had tried everything and everyone else to get the machine to work but to no avail. In desperation, they called on the retired engineer who had solved so many of their problems in the past. The engineer reluctantly took the challenge. He spent a day studying the huge machine. Finally, at the end of the day, he marked a small “x” in chalk on a particular component of the machine and said, “This is where your problem is.” The part was replaced and the machine worked perfectly again. The company received a bill for \$50,000 from the engineer for his service. They demanded an itemized accounting of his charges. Can you guess what the engineer's response was?

(Answer on Page 11)



Transportation and Environment

By: David Henderson, P.E., State Hydraulics Engineer
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Transportation professionals nationwide are faced with a tremendous challenge to provide improved transportation infrastructure and manage this program in an environmentally responsible manner. North Carolina like many other states in the southeast is feeling the pressures resulting from migration of industry and population into the Sunbelt. We are also blessed with many outstanding resources and our surface waters are certainly recognized as one of our most valued. Our waterways provide energy, water supply, food, recreation, transportation, and habitat for a tremendous variety of plant and animal life. Truly the health of our waters is an indicator of the health of our State

Many of our waterways exhibit signs of stress from society's encroachment. Land use within a watershed obviously impacts our waterways. Commercial, industrial and residential development, agriculture, silvaculture and mining can and often burden our waterways by various means. Our transportation network with more than 76,000 miles of state maintained highways touches every major watercourse in North Carolina. Therefore, **OUR** Department possesses capability to either harm or enhance water quality.

In response to waterway buffer zone regulations, the Hydraulics Unit has partnered with Division of Water

Quality to develop reasonable and functional means to disseminate surface runoff from highway facilities. Level Spreaders and Preformed Scour Holes have been recognized as beneficial devices to control and treat surface drainage but there has been neither established criteria for utilization nor detail for construction. The Draft Level Spreader Design Options, Version 1.0, has just recently been included in the DWQ Wetlands Unit web site. Hydraulics Unit and DWQ staff also recognized that these devices are only part of our Best Management Practices and there are limitations in application and use. The web site can be found at h2o.ehnr.state.nc.us/ncwetlands/level.pdf.

The cooperative efforts of both Hydraulics and DWQ staff produced results which extend beyond highway needs. Those engaged in private sector land development will also benefit from this work. This partnership and dedication of effort to reach solutions for the public good will continue in the future.

It is the Hydraulics Unit and DWQ desire that this inter agency team effort to balance sound engineering judgment with environmental stewardship will provide the citizens of North Carolina with the transportation network they demand and environmental quality they deserve.

Corbett Tract Acquisition

By: Gordon Cashin, NCDOT Bio-Team Leader
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The NCDOT recently acquired a tract of land to be used for wetland and endangered species mitigation. The site consists of about 568 acres in northeastern New Hanover County in the coastal region of North Carolina. The tract was purchased from a number of heirs of the Corbett family and appropriately named the Corbett tract. The NC DOT closed on the property this fall after all parties were in agreement.

New Hanover County contains habitat for *Lysimachia asperulaefolia* (Rough-leaved Loosestrife). Rough-leaved Loosestrife is a federally endangered plant species that occurs in only nine population centers of North and South Carolina. It occurs in ecotones between savannahs and pocosins. The Fish and Wildlife Service (FWS) learned that the endangered plant existed in New Hanover County only when DOT found it while surveying for a new highway. The proposed roadway was shifted to avoid impacts to the plant.

Several additional Rough-leaved loosestrife sites were discovered when the survey was updated this year that had not been found in the initial 1996 survey. The

new highway will impact these sites. NCDOT must mitigate for these impacts, and the Corbett tract will be used for this purpose. The Corbett tract contains five significant areas of suitable habitat for Rough-leaved Loosestrife, and the plants have been found on the tract. The site also offers potential to enhance the habitat to benefit the plant.

NCDOT also conducted a feasibility study for wetland and stream restoration. This study indicated that restoration might adversely affect adjacent properties. Altering the site hydrology might also adversely affect the Rough-leaved loosestrife. NC DOT will have to conduct additional studies to determine the best management alternative to maximize both hydrologic restoration goals and endangered species management. However, even the worst-case scenario is a happy one. The tract preserves over five hundred acres of wetlands and endangered species habitat in a rapidly developing area of the state.



Lysimachia Asperulaefolia

Environmental Stewardship

By: Randy Turner, NCDOT Bio-Team Leader
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Stewardship. The dictionary defines stewardship as the act of managing property, finances, or other affairs. Many of us were probably first introduced to the word at Sunday school or church when the pastor would talk about the annual stewardship drive. In this context the membership was being asked to make special contributions as a gesture of its deeply held obligations to the church. This sense of obligation might be better translated as a sense of giving back. Through this system of giving, or giving back, the resource (in this case, the church) is maintained and sustained.

Environmental stewardship works the same way. Most of us respect the natural world and are saddened to watch it being over-exploited and abused. As individuals we sense an obligation to give something back to the natural environment. The rationale for this sense of obligation lies in our awareness that we take a great deal from the environment. As members of contemporary human society we demand products and services to sustain our abundant lifestyles. Our homes and streets, the factories which manufacture the products we must have, and the businesses which market and distribute these same products are often built at the expense of the natural world. Fragmentation and reduction of natural habitats, as well as degradation of streams and aquifers from soil erosion and toxic effluents are some of the inevitable results of our excesses. The effected natural areas are often converted to impervious development. The fauna, which are displaced by our development experience long-term ill effects. Continually taking from the natural world without giving back has led to a decline in the quantity and quality of natural environments. Dirtier water and air, and increased pressures on dwindling natural areas affects the quality of our own lives. Our sense of well being is inextricably linked to the natural world around us.

In the transportation realm, the NCDOT has a special obligation to make adequate allowances to the natural environment because of the cumulative environmental consequences of its projects. Highway projects provide enhanced opportunities for commerce and industry, private citizens, and visitors to the state. Development of new highways and expansion of existing roads takes a toll on previously undisturbed habitats, and on the biota in the surrounding areas. Responsible transportation managers acknowledge the unavoidable environmental consequences of building and maintaining transportation facilities. One problem transportation professionals face with openly supporting a comprehensive program of environmental stewardship is the impact such a

program can have on the transportation budget. The cost of transportation improvements will increase when the impact of environmental stewardship is factored in. However, the old, traditional cost formulas failed to consider stewardship obligations. We should view environmental stewardship as part of the cost of doing business.

One solution to manage the transportation budget with a pro-active stewardship program is to program the cost of stewardship at the front end of the process. Once the cost of stewardship is programmed, the cost of longer bridges, for example, will not be viewed as overruns. Instead, longer bridges will be viewed as the baseline cost of building highways in high quality natural environments. It is true that fewer projects will be built with a finite amount of transportation funds available, but it is also true that the projects that are built with a pro-active stewardship program in place will not put important natural environments at risk. Cumulatively, the result of implementing this kind of budgetary approach will be a significant legacy to the present and future citizens of the state.

Being a responsible environmental steward is one of the rightful roles of a transportation program; however, there is also a role for the environmental community in reinforcing the Department's pro-active initiatives and in partnering with the Department in finding appropriate ways to make the transportation stewardship investment go further. Flexible mitigation should provide credits to the Department for extraordinary stewardship efforts. The credits could be used to offset impacts from future highway projects. The kind of stewardship program that the Department should sponsor would provide additional funds to enhance or improve important ecosystems. These stewardship efforts are likely to be somewhat limited and would not always achieve the ultimate desired effect simply because there is not enough money available from taxpayer sources to fully fund maximum efforts. Only by forging critical partnerships with state and federal environmental agencies can the Department hope to achieve meaningful results at important ecosystem-highway interfaces.



"Wildlife Passage" - a NCDOT Stewardship Effort

Employee Spotlights

David Schiller is a Mitigation Tracking Specialist in the Office of Natural Environment. A skilled plant ecologist, he received a Bachelor of Science Degree in Biology and a Master of Science Degree in Botany from North Carolina State University. He served in the US Army in Vietnam as a Surveyor in a Corps of Engineers Construction Battalion, providing survey support for roads, airfields, and other construction projects. This experience has proven to be extremely valuable in his professional career.

Following his schooling, he worked for more than 22 years with the Environmental Services Section of Carolina Power & Light Company. There, Dave's section concentrated on monitoring the environmental impacts of power plant operation on aquatic systems in support of the Company's permitting unit. Dave also worked on monitoring air and water quality, National Pollutant Discharge Elimination System (NPDES) and Natural Resource Technical Reports (NRTR's).

Dave joined NCDOT's Mitigation Section in 1995. In 1999 he was promoted to a Bio-Team leader. He currently holds the position of Mitigation Tracking Specialist, which involves both short and long term forecasting of wetland impacts and the Department's future Mitigation needs. He works closely with Entrepreneurial Bankers and Consultants developing full delivery projects, and with the NC Wetland Restoration Program's in lieu-fee program.

Dave and his wife, Sandy, along with their two Cocker Spaniels reside in Raleigh. Away from work, he enjoys gardening, shooting skeet, and hunting.

David H. Schiller



Clay Willis



Clay Willis is an Environmental Specialist II in the Office of Natural Environment. A native of Edenton, NC, he enjoyed the marine and wetland ecosystems, which he grew up in. Clay graduated from Cape Fear Community College with an Associates Degree in Applied Science in Marine Technology. He received his Bachelor of Science Degree in Marine Biology from the University of North Carolina at Wilmington. Clay worked at North Carolina State University's Botany Department Center for Applied Aquatic Ecology for 4 years. His primary duties were collecting physical and chemical water quality data within the Lower Neuse River basin, data transformation, and analyzing and mapping field data within a Geographical Information System.

Clay has been with the Project Development and Environmental Analysis Branch for two years. His primary responsibilities are getting the necessary environmental permits for transportation improvement projects. This involves natural community identification, protected species surveys, wetland delineation, mitigation activities, report writing, and permit acquisition.

Clay's enjoyment of wetland ecosystems flows over into his activities outside of work. He and his chocolate lab "Ford" are avid duck hunters. Clay and his wife, Kim, reside in Fuquay-Varina.

We say goodbye to Clarence Coleman, Eric Black, and Jill Holmes

Clarence Coleman has been an Engineer with NC DOT for 10 Years. He is leaving the department to pursue an opportunity with the Federal Highway Administration in Raleigh, NC.

Eric Black has recently left NCDOT after 4 years of service as an Environmental Specialist to work for the environmental consulting firm, HSMM.

Jill Holmes, an Environmental Specialist I, is moving back to her home state, Texas. Her husband, Dave, has accepted a position there with US Geological Surveys.

We wish all of these individuals continued success. We will miss you!

Detour Answer: "One chalk mark \$1, Knowing where to put it \$49,999." It was paid in full and the engineer retired again in peace.

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Our Mission Statement

Each of the teams in the Office of Natural Environment is responsible for natural resource investigations, obtaining environmental permits, developing wetland and stream mitigation plans, and implementing the construction of mitigation sites.

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